STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF UNDERGROUND STORAGE TANKS

COMPLIANCE GUIDANCE DOCUMENT – 113

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REQUIREMENTS FOR SPILL AND OVERFILL PREVENTION

PURPOSE

The purpose of this guidance document is to assist Division of Underground Storage Tanks (Division) staff and the regulated community in understanding the regulatory requirements of spill and overfill prevention. This document will give guidance for the proper installation, operation and maintenance, inspection, and testing practices and recordkeeping requirements for underground storage tank (UST) systems with various types of spill containment and overfill prevention devices as well as the spill and overfill reporting requirements.

This Guidance Document contains the current policy of the Division based on the statute and regulations governing the Tennessee Petroleum Underground Storage Tank program. This document supersedes all previously published versions, and may be amended from time to time without advance notice to the regulated community as regulatory amendments or policy changes warrant. The most current version of this guidance document will be posted and always available on the Division's website.

APPLICABILITY

Every tank that is filled by transfers of a petroleum substance of at least 25 gallons at one time is required to have spill and overfill prevention. This applies to all product tanks including tanks using remote fills. If a tank has more than one fill pipe, then all fill pipes must have spill containment.

EXCEPTIONS:

- Waste oil tanks do not require spill prevention devices (spill buckets) to be installed since waste oil tanks are filled with small quantities of oil at a time. Although not required by Division regulations, waste oil tanks typically have a spill bucket installed at the port where the tank is emptied. For waste oil tanks with spill prevention devices installed, the Division policy does not require the owner/operator to perform monthly inspection and/or maintenance of these devices but it is a best management practice. Due to the costliness of cleaning up a spill of a waste petroleum substance, the Division recommends that all tank owner/operators take advantage of the safety provided by spill prevention devices and encourages them to consider adding overfill protection on these tanks also.

- Although not as common, some tanks may be filled at a port which is in a contained box, vault, room, or bermed surface area which may suffice as spill prevention. In these cases, if the containment area is sufficiently designed to be impervious and not allow a spill to be released to the environment, then a "spill bucket" is not required. (See examples below)

Bermed area at remote fills

Spill device built into wall

- Some fill ports may be contained within a **sealed** submersible turbine pump sump. In this case, the addition of a spill bucket would not be required.

"All-in-one" Sump not requiring spill bucket

NOTE: Alternative equipment may be used that is determined by the Division that the device is no less protective of human health and the environment than the equipment specified in the regulations and these guidelines.

SPILL PREVENTION

Spill prevention devices are used at fill pipes to catch drips and small spills of fuel that may occur when the delivery hose is disconnected from the fill pipe. The most common type of spill prevention device is called a "spill bucket" or "catchment basin". (See examples on page 4)

- A spill prevention device (spill bucket) is typically not designed to contain product for long periods of time.

- Some spill prevention devices (spill buckets) are equipped with a drain back mechanism or manual pump that allows accumulated product to drain back into the tank. See the "Maintenance" section for photographs of drain back mechanism and manual pumps. Drain back mechanisms are normally closed and hold liquid in the bucket until activated, when product drains into the tank. Activating the drain back mechanism also allows any liquid such as rainwater or parking lot runoff to drain into the tank. Drain back mechanisms occasionally get stuck in the open position by a foreign object blocking proper closing of the device. Many drain back mechanisms have a screen to keep larger objects out, but do nothing to prevent the inflow of water that gets into a spill bucket.

- Spill bucket drain back mechanisms are not recommended on tanks storing E-85 fuel due to the potential for water ingress and phase separation. It is especially important that these be maintained in proper working order and seal tightly if installed on any other ethanol blended fuel tanks.

- If spill prevention is not equipped with a drain back mechanism or pump, then any product or water in your spill bucket must be removed manually and disposed of properly.

- Manual pumps are pneumatic devices that allow the liquid in the spill prevention device to be easily pumped out. If the spill prevention devices at the facility are equipped with one of these devices, then the Division requires the removed liquid be properly disposed of and not pumped onto the ground or paved area.

- Lids or covers are required on spill buckets and are required to be in good condition and not in contact with the fill cap. If the cover does not fit tightly, dirt, sand, small gravel or other debris could also be drained into the tank through the drain back mechanism, if present.

- Spill prevention devices are usually constructed of steel, plastic, or fiberglass but occasionally may be designed and constructed differently as detailed in the above "Exceptions".

- Installation practices generally specify spill buckets be installed at a slightly higher elevation than the surrounding pavement and the finished surface sloping away from the spill bucket. This helps keep rainwater and parking lot runoff from accumulating in spill buckets.

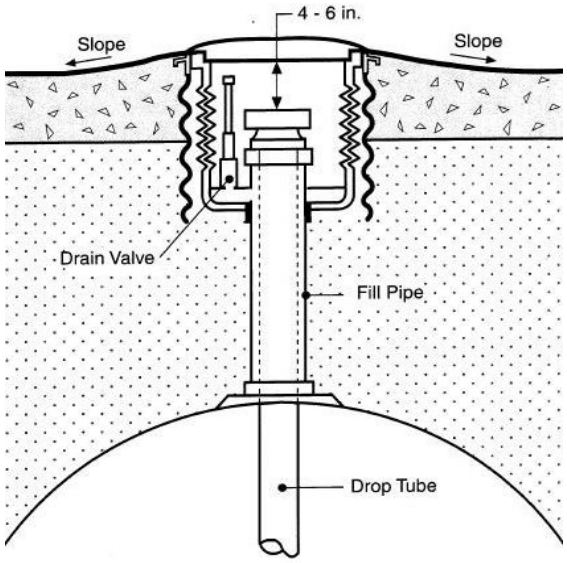
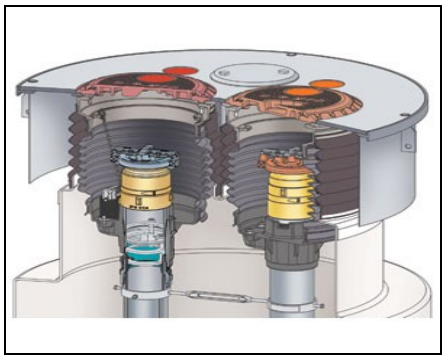


Diagram of an elevated spill bucket with drain back mechanism

- Below are examples of the most common types of spill buckets:

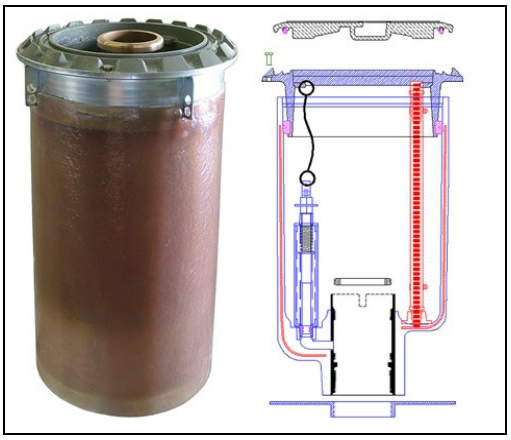
Typical Spill Bucket

Steel Spill Bucket



"Multi-port" sump with dual spill buckets

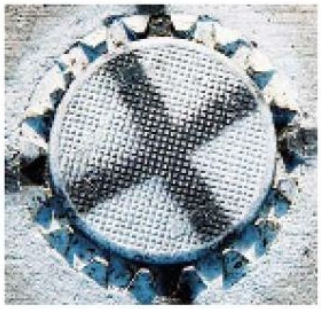
Plastic spill bucket



Fiberglass Spill Bucket

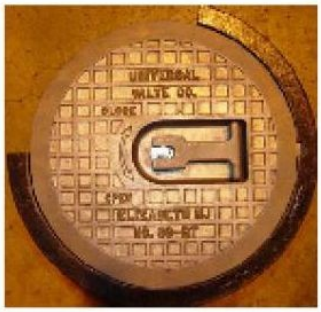
Newly installed spill bucket

OPW 2100C; OPW 2105
Rim 16", Lid 13.75"



OPW 4000
Rim 16.375", Lid 13.125"

EBW 705
Rim 17.25", Lid 14"



Universal 69RT/71CD
Rim 15", Lid 12.75"

Pomeco
Rim 21", Lid 17.25"

- Some spill buckets may be above-grade but still must meet all applicable requirements:

GENERAL REQUIREMENTS:

- **Division regulations require that the owner/operator must ensure that the volume available in the tank (ullage) is greater than the volume of petroleum to be transferred to the tank before the transfer is made. This is usually accomplished by gauging (sticking) the tank or verifying the volume by reading the inventory printout from an ATG. Also, other agencies require that the transfer operation be monitored constantly to prevent overfilling and spilling.**

- Spill prevention is required for every UST that is filled with more than 25 gallons of product at one time.
- Spill prevention must prevent the release of product to the environment when the transfer hose is detached from the fill pipe.
- It must be kept free of any liquid, dirt, debris and any other substance that would interfere with the ability to prevent spills **or interfere with its inspection.**

Liquid (water and/or fuel)

Dirt and/or debris

- All spill catchment basins (spill buckets) are required to have a lid in good condition that does not come in contact with the fill cap.

Proper Lid

Damaged Lid

Spill bucket lid with seal

- All spill prevention devices must be visually inspected each month ensuring the above requirements are met. A log of these inspections must be kept for the last 12 months.
- All spill prevention devices must be installed, operated, and maintained in accordance with the manufacturer's instructions, including routine maintenance for operability.

INSTALLATION:

- Installation must be in accordance with standard industry practices such as PEI RP-100 or API 1615, or in accordance with the manufacturer's installation instructions.
- The spill prevention device must be tested for integrity upon initial installation. Integrity testing may be done using either a hydrostatic or vacuum testing procedure. At least one manufacturer offers an electronic tester that detects leaks using an electronic level sensor to measure the change in liquid level over a precise period of time. The advantage of the electronic hydrostatic test is the test period can be as short as 10 minutes, but testing may only be done by company trained and certified technicians. (see Appendices 1 and 2 for Testing Procedures).
- If the spill prevention device is double-walled or secondarily contained, then test the integrity of the interstitial space in accordance with the manufacturer's specifications in lieu of a hydrostatic or vacuum test of the primary spill bucket.

OPERATION AND MAINTENANCE:

- For as long as the UST system is used to store petroleum, owners and/or operators shall ensure that releases to the environment due to spilling do not occur.

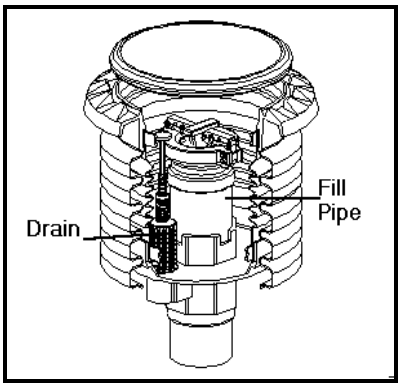
- All spill prevention devices must be kept clean of all substances whether liquid (water, fuel, etc.) or solid debris (soil, gravel, leaves, trash, etc.). Spill prevention devices made of metal are many times subject to heavy corrosion which can accumulate over time until a thick layer forms. This may prevent adequate inspection of the walls and floor of the device where cracks or holes may be present. This corrosion must be removed and the device properly inspected. In the example below, heavy corrosion inside the device obscured the holes from being discovered during previous inspections:

Heavy corrosion inside

After excavation

After removal

- If the spill bucket is equipped with a bottom drain back mechanism, it must be properly maintained. If dirt and debris are allowed to accumulate, it may prevent the valve from sealing properly allowing water to enter the tank through the spill catchment basin. Also, if the valve on the drain back mechanism does not seal properly, it may interfere with the proper functioning of the overfill prevention if ball floats are used. Faulty drain back mechanisms may be required to be replaced with a plug to seal the valve opening and any liquid removed with a hand pump.



Drain Valve

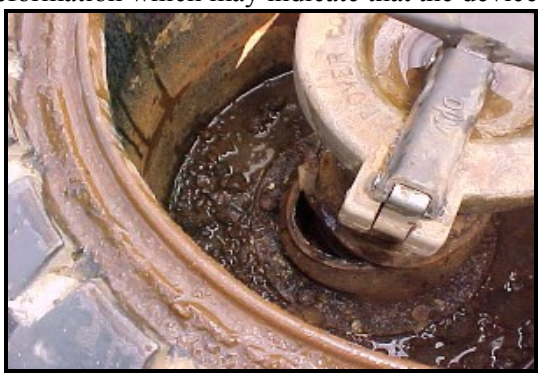
Manual Type Hand Pump

Plunger Type Drain Valve

Pump Type Drain Valve

INSPECTION AND TESTING:

- The owner/operator must visually inspect all spill prevention devices each month to ensure the above requirements are met. A log of these inspections must be kept for the last 12 months.
- During inspections, visually confirm that the spill prevention devices appear to be functional (no holes or cracks, no debris) and that the lid prevents rainwater and/or surface water runoff from entering the spill prevention device. Notations should be made on the Monthly Spill Bucket Inspection Log (CN-1286) attached in Appendix 4.
- For spill buckets, inspect the seal around the base of the riser near the floor of the device for any cracks, holes, or deformation which may indicate that the device will not contain liquid as required.



Defective Seal

- An integrity test must be performed on each spill bucket upon initial installation. Some manufacturers recommend testing spill buckets at a frequency ranging from six months to three years. Some manufacturers recommend replacement every three years. However, an owner/operator may choose to conduct an integrity test in lieu of replacement. If the integrity test determines that the bucket is tight, it would not require replacement. If testing in lieu of replacement, **the integrity test must be repeated each year thereafter until the bucket is replaced.** See Appendices 1 and 2 for Testing Procedures.

- Bermed spill prevention devices do not require integrity testing due to the nature of the construction. However, they do require periodic inspection and repair and/or replacement if found defective. Any visible cracks in the concrete will require repair.

REPORTING AND RECORDKEEPING:

- Monthly inspections are required for all spill prevention devices. The results of these inspections must be recorded on the Monthly Spill Bucket Inspection Log (CN-1286) as attached in Appendix 4. These logs must be maintained for the previous 12 months and made available upon request by the Division.

- If a defective spill prevention device is discovered at anytime, then the device shall be repaired or replaced. The owner/operator shall notify the Division within 72 hours prior to any repair (repairs may only be made if allowed by the spill bucket manufacturer) or replacement. If a defective spill prevention device is replaced, a Division inspector should be present to determine if an environmental impact has occurred and if a Site Check will be required. An owner/operator may be given an opportunity to conduct an integrity test in lieu of replacement. If the integrity test determines that the bucket is tight, it would not require replacement. **The integrity test must be repeated each year thereafter until the bucket is replaced.** See Appendices 1 and 2 for Testing Procedures.

- Fuel is sometimes spilled when the fuel delivery hose is disconnected. Any spill or overfill of petroleum that exceeds 25 gallons or causes a sheen on nearby surface water must be reported within 72 hours. Spills and overfills under 25 gallons that are contained and immediately cleaned up do not have to be reported.

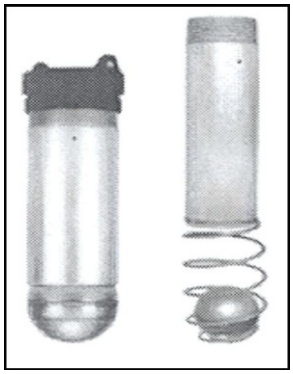
- Records of any spills, cleanup and abatement activities must be maintained for the operational life of the tank system. Spill bucket integrity test results shall be maintained until the next integrity test is conducted or the device is replaced.

OVERFILL PREVENTION

Overfill prevention devices are installed in the UST to help prevent the tank from being overfilled during product delivery. Overfill prevention devices are designed to reduce product flow, stop product flow, or alert the delivery person during delivery before the tank becomes full and product is released into the environment.

There are three common types of overfill prevention devices:

Flow restrictive (ball float valves): A ball float valve (also called a flow vent valve) is located inside the tank where the vent line exits the tank. The ball float valve restricts vapor flow from the UST as the tank gets close to full. As the tank fills, the ball in the valve rises, restricting the flow of vapors out of the UST during delivery. The flow rate of the delivery will decrease noticeably and should alert the person responsible for monitoring the delivery to stop the delivery. It may be difficult to determine whether or not this device is present because of where it is located. It may be possible to find an extractor port for the ball float valve (see picture below) but a specialized tool will be required to remove the extractor port. Otherwise, the paperwork must be reviewed to determine whether the tank has this device or ask the contractor who installed the tanks.



Ball Float

Ball Float

Extractor Port Containing Ball Float

Installed Ball Float

Poppet Valve on riser containing ball float

A**utomatic shutoff (flapper valves):** An automatic shutoff device is located in the fill pipe of the tank. When looking down the fill pipe, it will appear as a line cutting through the fill pipe (or a "half moon" shape in the fill pipe). The automatic shutoff device slows down and eventually stops the flow of product during delivery when the product has reached a certain level in the tank.

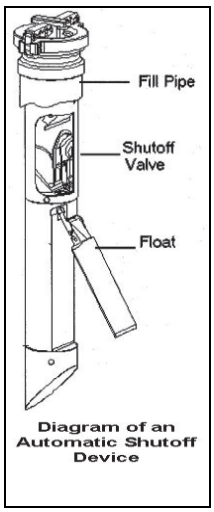
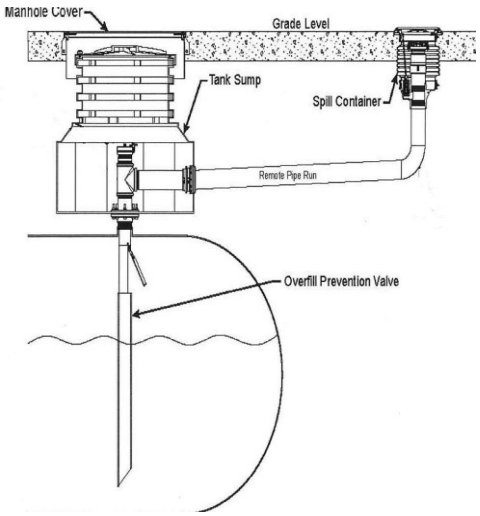


Diagram of an Automatic Shutoff Device


View of shutoff valve in drop tube



Remote Fill Flapper Valve

Overfill alarms (audible/visible high level alarms): An overfill alarm has a sensor in the tank. The sensor is typically connected to a monitoring device such as an automatic tank gauge (ATG). When the fuel in the tank reaches a predetermined level, an audible/visual alarm will be activated. The alarm provides a warning that must be seen or heard (or both) by the person delivering the product when the tank is close to being full. The warning activates when the UST is approaching tank capacity and warns the delivery person to stop delivery. When the alarm activates, the delivery person should immediately stop the flow of product to the tank.


Audible and visual alarm

GENERAL REQUIREMENTS:

- **Division regulations require that the owner/operator must ensure that the volume available in the tank (ullage) is greater than the volume of petroleum to be transferred to the tank before the transfer is made. This is usually accomplished by gauging (sticking) the tank or verifying the volume by reading the inventory printout from an ATG. Also, other agencies require that the transfer operation be monitored constantly to prevent overfilling and spilling.**

- Overfill prevention is required for every UST that is filled with more than 25 gallons of product at one time. All overfill prevention devices must be installed, operated, and maintained in accordance with the manufacturer's instructions, including routine maintenance for operability.

- Requirements for the three common types of overfill prevention devices:

  1) Automatic shut off devices (i.e. flapper valves) that shut off flow of product into the tank when the tank is no more than ninety-five percent (95%) full or,

2) Flow restriction devices (i.e. ball floats) that alert the transfer operator when the tank is no more than ninety percent (90%) full by restricting the flow into the tank or triggering a high-level alarm or,

3) Audible or visual devices that restrict flow thirty (30) minutes prior to overfilling, alert the operator with a high level alarm one (1) minute before overfilling, or automatically shut off flow into the tank so that none of the fittings located on top of the tank are exposed to product due to overfilling.

INSTALLATION:

- Overfill prevention devices must be installed in accordance with standard industry practices such as PEI RP-100 or API 1615 and manufacturers' instructions.

- If an overfill alarm is installed, test buttons should be activated to insure proper operability upon initial installation.

OPERATION AND MAINTENANCE:

- For as long as the UST system is used to store petroleum, owners and/or operators shall ensure that releases to the environment due to overfilling do not occur.

- Overfill devices usually do not require maintenance (see inspection and testing requirements below) however, a best management practice would be to periodically check to ensure they are in good working order. Below are photos of damaged or missing ball floats. As a result, the Division will require verification during inspection as outlined below.

Missing Ball Float

Damaged Ball Float Cage

Damaged Ball Float

- High level alarms must be positioned so the transfer operator can see **and/or** hear the alarm.

- **Restrictions for operation:** Ball float valves **cannot** be used if any of the following conditions exist for the same tank system:
  1) Suction piping is used (if tank is overfilled, fuel may be released through the air eliminator at the dispenser)
  2) Pressurized deliveries are made
  3) Remote fills are used
  4) Coaxial stage I vapor recovery is used

INSPECTION AND TESTING:

- If ball floats are used, their presence must be verified by one of the options below:
  1) Invoice verifying installation (if installed within the last 3 three years); or
  2) Visual verification documented by third party certification; or
  3) Field verified by Division inspector during inspection

  NOTE: After the initial verification, if the owner/operator does not elect to provide visual verification during any subsequent inspection, a flapper valve or audible/visual alarm shall be installed**. If a shutoff device (flapper valve) is installed in the same tank system with a ball float, then the flapper valve should be set to activate at a lower shutoff level than the ball float according to PEI RP-100.**

- If a flapper valve is used, then visual verification will be made by Division personnel on the day of the inspection.

- If a high level alarm is used, then the overfill alarm test button should be activated by the owner/operator to insure proper operability on the day of the Division inspection. Also, the location of the alarm will be verified to determine if it is audible and/or visible to the delivery person.
  If a test button is not available, then the tank owner/operator (or duly authorized representative) must know how to activate the high level alarm.

REPORTING AND RECORDKEEPING:

- Records required to be maintained by the owner/operator:
  1) Ball float installation documents, if applicable (see above requirement).
  2) Any repair records such as replacement of ball floats, replacement of flapper valves, or repairs to the audible/visual alarm. These records must be maintained for the life of the UST system.

- If a defective overfill device is discovered at anytime, then the device shall be repaired or replaced.

- Fuel is sometimes spilled when the tank is overfilled. Any spill or overfill of petroleum that exceeds 25 gallons or causes a sheen on nearby surface water must be reported within 72 hours. Spills and overfills under 25 gallons that are contained and immediately cleaned up do not have to be reported to the Division.

An overfilled tank may cause a release from the vent pipe

- Records of any spills, cleanup and abatement activities must be maintained for the operational life of the tank system.

REFERENCES:

EPA's "UST Systems: Inspecting and Maintaining Sumps and Spill Buckets"

PEI's "PEI/RP 100-05 Recommended Practices for Installation of Underground Liquid Storage Systems"

API 1615 "Installation of Petroleum Underground Storage Systems"

OPW Installation and Maintenance Instructions- OPW DW-VAC-TEST Double Wall Spill Container Vacuum Test Instructions

Franklin Fueling 15 Gallon Field-Replaceable Double Wall Spill Container Model 715-460-xx Installation Instructions

Franklin Fueling DEFENDER SERIES™ 5 Gallon, Double Walled, Field Replaceable Spill Container Model 705-550 Series Installation Instructions

APPENDICES

1. Spill Prevention Device Hydrostatic Testing Procedure
2. Spill Prevention Device Vacuum Testing Procedure
3. Manufacturer's Procedures for Testing Double Wall Tanks
4. Monthly Spill Bucket Inspection Report

APPENDIX 1

Spill Prevention Device
Hydrostatic Testing Procedure

A test must be performed on each spill prevention device (device) upon initial installation. The test must be conducted for a minimum of four (4) hours. During this time, no deliveries may be made at this fill pipe. The test should be conducted only during a time when there is no chance of precipitation because inclement weather would cause the water in the device to increase by an unknown amount. If obvious damage such as cracks, holes, or defective seal is observed, then the spill bucket cannot be tested.

NOTE: <u>All</u> spill prevention devices, regardless of design (i.e., some spill prevention devices may not be a conventional "spill bucket"), require the initial testing. However, this procedure does not apply to bermed areas used as spill prevention. These areas are subject to visual inspection and any cracks or defects discovered must be immediately repaired.

A. Before Testing:

1. Water and a tape measure that is capable of measuring to one-eighth of an inch shall be used. Spray paint or an indelible marker may be used if a tape measure is not available.
2. Ensure that the device is empty and clean.
3. Make sure that any drain valve is completely closed. If the drain valve is not sealing properly, then it must be repaired before conducting the test.
4. Fill cap must seal properly or be replaced to avoid any surface water intrusion into the tank.

B. Conducting the test:

1. Using an indelible marker, mark the inside of the spill bucket at a level which is slightly below the top of the cap on the fill riser.
2. Fill the spill bucket with water to the level of the marking.
3. Allow water to stand for a minimum of four (4) hours. If no change is detected, then the test may be ended. If a change is detected, the test is considered a fail.
4. Measure the difference of the water level using a tape measure to the nearest one-eighth of an inch.
5. Empty and clean the spill bucket.
6. At the end of the test, the water may be re-used for additional testing or must be disposed of properly.

C. Results:

If the water level in the spill bucket decreases by as much as one-eighth of an inch or more, then the spill bucket may be leaking. The spill bucket must be evaluated to determine if it can be repaired (if allowed by the manufacturer) or if it must be replaced. If the water level in the spill bucket loses less than one-eighth of an inch, then the spill bucket passes the test.

D. Reporting and Recordkeeping:

The installation test record must be kept for the life of the UST system or until the spill bucket is replaced. If a spill bucket does not pass the integrity test, then the bucket shall be repaired or replaced. The owner/operator shall notify the Division within 72 hours prior to any replacement. This will allow a Division inspector to be present to determine if an environmental impact has occurred and if a site check will be required. Repairs may only be made if allowed by the spill bucket manufacturer.

APPENDIX 2

Spill Prevention Device
Vacuum Testing Procedure

Safety Note: *If a vacuum test is being performed on a spill bucket which has not been placed into service or product has not been used to ballast the tank, safety precautions are minimal, however if the bucket has held product, or is in use on a tank that has held or is holding a regulated substance, adequate safety precautions must be taken since petroleum and/or ethanol vapors can be flammable and/ or explosive. Only properly trained personnel using the proper testing equipment and testing procedures specified by the testing equipment manufacturer or testing company should attempt to conduct a vacuum test on a spill bucket once petroleum substance have made contact with it.*

Vacuum testing procedures may vary somewhat with the manufacturer or vacuum testing method used and should be conducted in accordance with the manufacturers written test procedures. If a manufacturer has no specified test procedures for testing spill buckets, the following Steps must be used to conduct a vacuum test:

1. Inspect the spill bucket. Make sure spill bucket is clean and free of all liquids and debris. Tighten any clamps or fittings that appear to be loose before beginning the test. Make sure the lip of the spill bucket does not have damage that would allow the ingress of ambient air during the test. Do not test if there are any obvious cracks, holes, or defects in the spill bucket.

2. Make sure the fill cap has a good fitting gasket and the fill cap is firmly secured to the fill pipe before attempting to apply a vacuum to the spill bucket.

3. Attach a plate or other tight fitting device to seal the spill bucket, making sure these is a gasket or some device to provide a tight seal around the lid of the spill bucket.

4. Attach the vacuum source to the plate and apply a vacuum of 1.0 pound per square inch gauge (psi) test pressure [equivalent to 28 inches of water column (in WC), 2 inches of mercury (in Hg), or 6.9 kilopaschals (kPa)]. Once the target test pressure is achieved, isolate the vacuum source from the spill bucket by using a ball valve.

5. Wait approximately 1 minute to allow for instrument stabilization to occur before beginning actual test.

6. If there is any deviation from the starting test pressure after 1 minute, restore the vacuum to the starting test pressure and repeat this step. If there is no deviation, go to Step 8.

7. If there is any deviation from the starting numbers after repeating step 6, disconnect the plate and reinspect the bucket, fill cap, clamps, vacuum tubing and gauges for leaks or loose fittings or connections that should be tight. Make any necessary adjustments and return to step 4. If stabilization is not reached after 1 minute (Step 5), discontinue this test.

8. If the vacuum level in Step 4 has been stable for at least 1 minute, begin the test and continue the test for a period of 5 minutes without making any adjustments to the test pressure during the test period. If the vacuum reading after 5 minutes of testing is less than 0.85 psig [24 in WC, 1.7 in Hg, 5.9 kPa] then the test fails. If the vacuum reading is greater than 0.85 psig, the vacuum test passes.

9. If the test fails, check all connections and repeat test from Step 4. If stabilization does not occur, or second test does not pass Step 8, the spill bucket fails the test.

APPENDIX 3

Manufacturer's Procedures for Vacuum Testing Double Wall Spill Buckets

Franklin Fueling 15 Gallon Field-Replaceable Double Wall Spill Container *Model 715-460-xx* **Testing Procedure**

Primary / Secondary contained vacuum testing instructions:

1. Remove the dipstick from inspection port and install approved test cap.
2. Apply vacuum source (pump or generator) and slowly apply vacuum until 26" water column of vacuum to the interstitial space is shown on the gauge and close ball valve.
3. Let spill container sit for 1 minute to stabilize. If needed, reapply vacuum to interstitial space until 26" water column is attained.
4. Allow spill container to rest undisturbed for 5 minutes while under vacuum.
5. Check vacuum gauge after 5 minutes. If the gauge shows less than 24" water column of vacuum the spill container has failed the test. *If failure occurs check that the test cap was properly installed and repeat test.

Franklin Fueling DEFENDER SERIES™
5 Gallon, Double Walled, Field Replaceable Spill Container Model 705-550 Series Testing Instructions

Vacuum Interstitial Testing Procedure:

Remove the Inspection Port Pipe from the spill container.

Install the T-7107 DW Vacuum Test Kit into the inspection port (hand tight).
• Make sure the O-ring is properly lubricated, clean of dirt and debris, and the I.D. sealing surface of the inspection port is clean of dirt and debris.
• If the unit includes a sensor, it does not need to be removed.

Connect the vacuum source to the 1/4" tube fitting (Push-Lok / Push-to-connect).

Connect the manometer to the 3/16" hose barb.

Close the ball valve.

Apply vacuum source (using a pump or generator) and SLOWLY open the ball valve until the manometer reads 30 inches of water column (WC) (7.472 kPa), then close the ball valve.

Wait approximately 1 minute to allow the interstitial space to stabilize.

If needed, re-apply the vacuum source to obtain 30" WC (7.472 kPa).

Allow spill container to rest undisturbed for 5 minutes while under vacuum.

Check the manometer reading after 5 minutes. If it reads above 26" WC (6.476 kPa), the interstitial space has passed the test.

If the manometer reads less than 26" WC (6.476 kPa), check all the connections and repeat the test. Otherwise contact FFS Technical Service.

OPW Procedure for testing OPW 1-3100 Series Double Wall Spill Containers using the OPW DW-VAC-TEST Double Wall Vacuum Tester

Step 1: Attach vacuum pump to gauge assembly using the Quick Connect Fitting.

Step 2: Make sure Test Valve is clean. Connect Test Adaptor to Test Valve on OPW 1-3100 Series Double Wall Spill Container.

Step 3: Make sure that the ball valve on the DW-VAC-TEST is open and use the pump to increase the vacuum to -15 inches of water column as displayed on vacuum gauge.

Step 4: Close ball valve when -15 inches of water column is displayed on the vacuum gauge. Allow spill container to sit for 30 seconds. Refill spill container to -15 inches of water column.

Step 5: Leave the spill container undisturbed for 5 minutes while under vacuum.

Step 6: Check vacuum gauge after 5 minutes. If gauge does not show 12 or more inches of water column, the spill container has failed the test.

NOTE: Keep the temperature of the unit constant during testing. Fluctuations in temperature of the unit could result in bias results.

APPENDIX 4

	STATE OF TENNESSEE ***DEPARTMENT OF ENVIRONMENT AND CONSERVATION*** ***Monthly Spill Bucket Inspection Log***	***DIVISION OF UNDERGROUND STORAGE TANKS*** ***4TH Floor, L & C Tower*** ***401 Church Street*** ***Nashville, TN 37243-1541***

Instructions

Tennessee Underground Storage Tank Rules require that visual inspections be made of all spill buckets on a monthly basis. In accordance with these rules, spill catchment basins shall be visually inspected by the owner and/or operator at least once a month to assure the integrity of the storage space provided for spill containment. A log of these inspections showing at a minimum the last twelve (12) months shall be maintained by the owner and/or operator.

- This form shall be utilized to record the results of visual inspections of each spill bucket at the facility once each month.
- A separate form should be used for each facility. The year the spill bucket inspections are performed shall be recorded in the space provided.
- The front of this form has space for up to six spill buckets. If there are more than six spill buckets at this facility, use the back of this form or make additional copies.
- If no standing liquid, debris or spill bucket defects (cracks, torn connectors, etc.) are noted, write "**OK**" in the appropriate column and row.
- If any standing liquid, debris or spill bucket defects are noted, write "**Not OK**" in the appropriate column and indicate what action was taken.
- If there are spill bucket defects and indications of released petroleum, it must be reported as a suspected release within 72 hours in accordance with Division regulations.
- Maintain the last 12 months of these inspections and have them available for state inspection.

UST FACILITY INFORMATION		
NAME:	FACILITY ID #:	YEAR:
ADDRESS:	CITY:	ZIP:

Checked MM/DD/YY	**Monthly Spill Bucket Visual Inspections** Record condition in each block for the appropriate spill bucket (SB)						Action taken if SB not OK
	SB # 1	**SB # 2**	**SB # 3**	**SB # 4**	**SB # 5**	**SB # 6**	
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Use this side for additional spill buckets present at this location.

Please indicate spill bucket number in the space provided. Use additional sheets for this location if necessary.

Checked MM/DD/YY	**Monthly Spill Bucket Visual Inspections** Record condition in each block for the appropriate spill bucket (SB)						Action taken if SB not OK
	SB # ___	**SB # ___**	**SB # ___**	**SB # ___**	**SB # ___**	**SB # ___**	
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